Small
Business
Innovation
Research

Plasma-Sprayed Thin-Film Selective Emitters

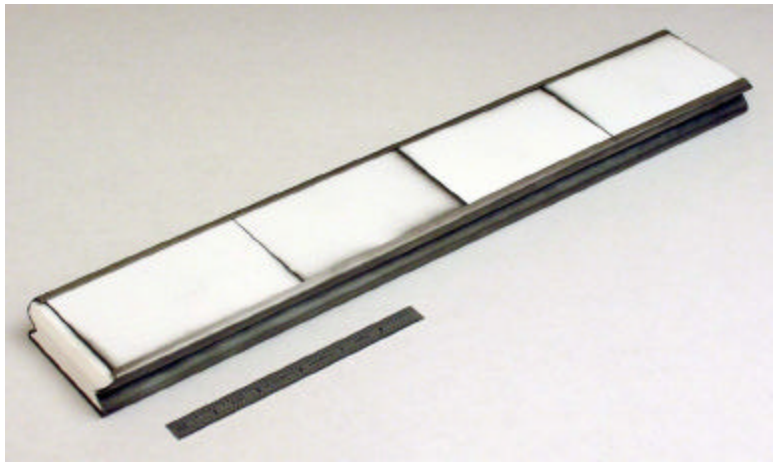
Creare, Inc.
Hanover, NH

INNOVATION

Use of a thermal-spray process to fabricate composite layers of oxides and metals to control spectral emittance

ACCOMPLISHMENTS

- Demonstrated selective emission characteristics at high temperatures up to 1800 K
- Demonstrated tuned spectral emittance using various rare-earth and doped oxide layers
- Demonstrated reduced out-of-band emittance through the use of reflective metal layers



Back Surface Reflector for IR Dryer

COMMERCIALIZATION

- U.S. Patent #6379789 issued 4/30/2002
- $200K of commercial development funding for a back-surface reflector (BSR) for IR paper-drying equipment
- License agreement for BSR product expected
- $10K of product sales to JX Crystals Inc. for thermophotovoltaic (TPV) system components
- $10K invested by Creare in support of NASA GRC development of rare earth optical temperature sensor

GOVERNMENT/SCIENCE APPLICATIONS

- NASA GRC has Commercial Technology Office funding to develop a high-temperature optical temperature instrument incorporating a fiber-optic sensor element based upon this technology

Glenn Research Center
Aero. Propulsion & Power, Instrumentation & Sensors, Space Power
3-088

1995 Phase II, NAS3-97018, 7/02
NASA Contact – Dr. Donald Chubb
Company Contact – Christopher J. Crowley